

# Congenital Cardiac Anesthesia: A Case-based Approach

Edited by Laura K. Berenstein and James P. Spaeth. Cambridge University Press, 2021. Pages: 409. ISBN-13: 978-1-108-49416-8. Price: \$99.99 (Hardback), \$60.49 (Kindle edition).

The world of Pediatric Cardiology and Cardiac Surgery is filled with all manner of nonintuitive acronyms and eponyms: Ebstein's Anomaly, Fontans of various sorts, Glenns, MBTS (Modified Blalock-Taussig Shunts), Mee shunts, Taussig-Bing hearts, Starnes Procedures, and many more. I have been practicing pediatric cardiac anesthesia for more than 30 yr and I still am left stumped occasionally when reading cardiology reports from outside institutions and have to resort to textbooks (or, more frequently now, Dr. Google) to figure out what cardiac condition or surgery my patient has had. Programs, cardiologists, and/or surgeons often use their own unique terminology. Multiple articles are readily found on PubMed addressing Pediatric Cardiac Disease and Procedural nomenclature and the need to use a common vernacular, but old habits persist. This idiosyncratic language serves as an effective barrier to the noncardiac practitioner and scares off many a pediatric anesthesiologist. However, it doesn't seem to scare off their patients—more and more of whom present every day in the general operating rooms and labor and delivery suites for noncardiac procedures.

There are now more survivors of pediatric cardiac surgery growing into childhood, adolescence, and adulthood than ever before. These patients frequently require a careful understanding of their physiology to safely anesthetize them for both minor and major procedures. Drs. Laura K. Berenstein and James P. Spaeth have edited a new book that helps navigate this challenging field in a case-based format that skillfully marries anatomy, physiology, and goal-directed care in a beautifully produced text. Each chapter opens with a brief clinical scenario summarizing the patient and planned procedure and their underlying cardiac diagnosis. The extremely well-written text is accompanied by the thoughtful use of diagrams, illustrations, and photographs to outline various anatomic and physiologic elements accompanying the cardiac defects. Care for the patient is not a cookbook—in fact, there is almost no mention of specific or suggested medications; rather, it is left to the practitioner to make those medical choices based on the patient's pathology and physiology.

I have been at this long enough to know that there is no “right” way to provide an anesthetic to these patients—many paths will lead to a safe landing as long as you understand the impact of your actions. There are no absolutes to be found in this text; the editors have chosen the 73 chapter authors from more than 20 institutions

representing both large and small academic centers and high- and lower-volume practices. The authors represent the entire spectrum from fellows in pediatric cardiac anesthesia to internationally known professors of pediatric cardiac anesthesia, yet there is a consistency from chapter to chapter that speaks to the work put into the writing and editing of this text by Drs. Berenstein and Spaeth and their seven section editors.

*Congenital Cardiac Anesthesia: A Case-Based Approach* is formatted around 50 chapters organized into 7 sections such as “Right-Sided Obstructive Lesions,” “Left-Sided Obstructive Lesions,” and “Complex Mixing Lesions,” each addressing a specific problem grouped by a common characteristic. Common lesions, such as tetralogy of Fallot for example, are presented across multiple chapters addressing both the unrepaired patient coming for cardiac surgery as well as the palliated or “repaired” patient undergoing a noncardiac procedure. The tetralogy with absent pulmonary valve (Tet-APV) receives its own chapter because of the implications to the bronchial tree from dilated pulmonary arteries while the tetralogy with pulmonary atresia and multiple aorto-pulmonary collaterals (Tet-MAPCAS) has a different set of physiologic challenges. Likewise, the Fontan (or total cavopulmonary connection) procedure, presented in Section 5 on “Single-Ventricle Physiology,” warrants three separate chapters: “Lateral Tunnel Fenestrated Fontan,” “Extracardiac Fontan,” and “Failing Fontan,” each of which has separate and distinct implications to the anesthesiologist caring for the patient. Each chapter in this 409-page text is concise, covering from 5 to 8 pages including illustrations, yet sufficiently detailed to quickly gain an understanding of the topic and its specific implications, and is accompanied by several important references. Within a given chapter are highlighted “Clinical Pearls” outlining the significant points of the preceding paragraphs. In Chapter 22 on “d-Transposition of the Great Arteries (Atrial Switch),” authored by Denise Joffe and Michael Eisses, for example, one finds “Clinical Pearl – An *atrial switch* procedure re-routes atrial blood *via* a baffle to the correct great vessel, albeit *via* the wrong ventricle. In contrast, in an *arterial switch* procedure the great vessels are transected and moved to the appropriate ventricle and the coronary arteries are reimplemented into the neo-aortic root, thereby correcting the anatomy.” In two sentences the authors have summarized more than 50

yr of surgical decision-making and laid the groundwork for the management of the patient. One cardiac lesion not represented, that probably should have been included, is Anomalous Origin of the Coronary Arteries (ALCAPA, ARCAPA, and AAOCA). These lesions, although rare, are more common than pediatric lung transplantation, which was included, and are frequently the cause of sudden cardiac arrest in adolescent athletes or new onset heart failure in the neonatal period.

This is not a comprehensive textbook of pediatric cardiac anesthesiology. You won't find detailed listings of pharmacologic agents, dosing schema, and their cardiac effects or the embryologic underpinnings of AV canal defects. It is aimed instead at the much larger audience of the general pediatric or adult anesthesiologist who has 10 min to review for an upcoming case and needs a quick refresher on the anatomy, physiology, and implications of pediatric cardiac disease or for the adult cardiac anesthesiologist who

is asked to care for a patient previously treated in a pediatric cardiac center now presenting emergently for a heart transplant or for adult congenital heart surgery. Given the ubiquitous nature of information today and the ready access to the internet in almost every operating location in the world, it is rare that I recommend a textbook to the trainees in pediatric anesthesia I work with daily. This text, however, is an exception and should be readily available for reference either electronically *via* the Amazon Kindle app or in hardcover.

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